A **tornado** is a violently rotating column of air that is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud. They are often referred to as **twisters** or **cyclone,** although the word cyclone is used in meteorology, in a wider sense, to name any closed low pressure circulation. Tornadoes come in many shapes and sizes, but they are typically in the form of a visible condensation funnel, whose narrow end touches the earth and is often encircled by a cloud of debris. and dust. Most tornadoes have wind speeds less than 110 miles per hour (177 km/h), are about 250 feet (76 m) across, and travel a few miles (several kilometers) before dissipating. The most extreme tornadoes can attain wind speeds of more than 300 miles per hour (483 km/h), stretch more than two miles (3.2 km) across, and stay on the ground for dozens of miles (more than 100 km).

Various types of tornadoes include the landspout, multiple vortex tornado, and waterspout. Waterspouts are characterized by a spiraling funnel-shaped wind current, connecting to a large cumulus or cumulonimbus cloud. They are generally classified as non-supercellular tornadoes that develop over bodies of water. These spiraling columns of air frequently develop in tropical areas close to the equator and are less common at high latitudes. Other tornado-like phenomena that exist in nature include the gustnado, dust devil, fire whirls, and steam devil.

Tornadoes have been observed on every continent except Antarctica. However, the vast majority of tornadoes in the world occur in the so-called "Tornado Alley" region of the United States, although they can occur nearly anywhere in North America. They also occasionally occur in south-central and eastern Asia, the Philippines, south east Asia, like Malaysian, northern and east-central South America, Southen Africa, northwestern and southeast Europe, western and southeastern Australia, and New Zealand. Tornadoes can be detected before or as they occur through the use of Pulse-Doppler radar by recognizing patterns in velocity and reflectivity data, such as hook echoes, as well as by the efforts of storm spotters.

There are several scales for rating the strength of tornadoes. The Fujita scale rates tornadoes by damage caused and has been replaced in some countries by the updated Enhanced Fujita Scale. An F0 or EF0 tornado, the weakest category, damages trees, but not substantial structures. An F5 or EF5 tornado, the strongest category, rips buildings off their foundations and can deform large skyscrapers. The similar TORRO scale ranges from a T0 for extremely weak tornadoes to T11 for the most powerful known tornadoes.[[11]](http://en.wikipedia.org/wiki/Tornado#cite_note-10) Doppler radar data, photogrammetry, and ground swirl patterns (cycloidal marks) may also be analyzed to determine intensity and assign a rating.[12

**Waterspouts**

Although most people think of tornadoes as the violent rotating columns of air on land, tornadoes can also occur on water. A [waterspout](http://weather.about.com/od/weathertutorials/f/tornformation.htm) is a type of tornado that forms over water. These tornadoes are usually weak, but can cause damage to boats and recreational vehicles. Sometimes, these tornadoes can move onto land causing other significant damage

Tornadoes that originate from a [supercell thunderstorm](http://weather.about.com/od/s/g/supercells.htm) are usually the strongest and most significant types of tornadoes. Most all of the large hail and extremely violent tornadoes are as a result of a supercell thunderstorm. These storms often feature wall clouds and [mammatus clouds](http://weather.about.com/od/b/g/back_sheared.htm).

**Dust Devils**

While a dust devil is not a tornado in the strictest sense of the term, it is a type of vortex. They are not caused by thunderstorms and are therefore not a true tornado. A dust devil results when the sun heats dry land surfaces forming a twisting column of air. The storms may look like a tornado, but are not. The storms are generally very weak and do not cause much damage. In Australia, a dust devil is called a [willy willy](http://weather.about.com/od/w/g/willywilly.htm). In the United States, these storms are defined as a tropical cyclone.

**Gustnado**

As a thunderstorm forms and dissipates, a gustnado (sometimes called a gustinado) forms from the outflow in the downdrafts from the storm. These storms are not real tornadoes either, although they are associated with thunderstorms, unlike a dust devil. The clouds are not connected to the cloud base, meaning any rotation is classified as [non-tornadic](http://weather.about.com/od/n/g/nontornadic.htm).

**Derechos**

[Derechos](http://weather.about.com/od/d/g/derechos.htm) are thunderstorm wind events, but are not tornadoes. These storms produce strong straight-line winds and can cause damages similar to a tornado.